DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027077
Date Inspected: 26-Jan-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name: Salvador Merino

Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Components

Summary of Items Observed:

On this date, Quality Assurance Inspector (QAI) Kenneth Riley was present at the San Francisco Oakland bay Bridge job site at Yerba Buena Island to observe erection and welding activities for the San Francisco Oakland Bay Bridge (SFOBB) project. This Quality Assurance Inspector (QAI) observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

A) Lifting Lug Holes
B) Field Splice 12W-13W
C) Field Splice 13W-14W
D) QA NDT Verification
E) Submittal Review

A). Lifting Lug Holes (SPCM)

The QAI observed that welder Mike Jimenez, was fitting up location 13W-PP119.5-W4-W1 lifting lug hole the QC inspector checked to the fit up for adherence to the Welding Procedure Specification (WPS) ABF-WPS-D15-1050A-CU which was found to be acceptable and verified by the QAI. The welder then proceeded to pre-heat the area prior to welding at 40 degrees Celsius (150 degrees F) which was verified using a tempstik and infrared gun by the QC. The welder was using the Shielded Metal Arc Welding (SMAW) using electrode E7018 for the Complete Joint Penetration weld with copper backing in the flat (1G) position. The

electrode used for the root pass was 3.2mm diameter with welding amps verified as 136. The welder then changed to the 4.0mm diameter electrode for the intermediate and cover passes. The QC inspector checked the welding amps along with this QAI and found them to be within range of the WPS as 198 amps. The welder was using a chipping hammer, power grinder and power wire wheel for the interpass cleaning. After the welder had completed lifting lug hole W1 he proceeded to hole W2 where he was preparing the area for the fit up process. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

B). Field Splice 12W-13W (SPCM)

The QAI observed welder Rich Garcia, at the 12W-13W-A5 location between Y= 300mm and 3500mm. The contractor had previously removed the splice plates of 5 U-ribs as agreed upon between Caltrans and the contractor to allow access to the welds in the overhead (4G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3110-4 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 255 amps, 23.3volts and 2. 36 k/j Heat index. The welder was placing the intermediate weld passes for this location and using a power grinder and power wire wheel for the interpass cleaning. The QC inspector for this location was Salvador Merino and was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI. Later in the shift this QAI observed the welder had moved down the length of the weld within the same Y location placing the intermediate to cover passes. This QAI spoke with the welder pertaining to the time of completion and it was relayed that he would be finishing some time tomorrow morning.

C). Field Splice 13W-14W-E1 & E2

The QAI observed welder Jeremy Dolman at the 13W-14W-D3 (Bottom Plate) in the flat (1G) position. The Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1 for the Complete Joint Penetration weld using the Flux Cored Arc Welding (FCAW) process with the E71T-1M, 1.6mm electrode. The welding parameters were verified as 230 amps, 23.4volts and Heat index of 1.62 k/j. The welder was placing the intermediate weld passes for this location by hand as the area was not inclusive for the Bug O system. Welder Rory Hogan was on the side plate at E2 and E1 where he was using the Bug O system for the FCAW process. The welding parameters were verified as 237 amps, 24.1volts and Heat index of 2.04 k/j. The preheat for both of these location were set at 40 degrees Celsius (150 degrees F) The QC inspector for this location was observed verifying and documenting the welding parameters for this location, along with overseeing the welding operations. At the time of the observations no issues were noted by the QAI.

D). QA NDT Verification

This QAI performed Magnetic Particle verification (MT) on the top deck f lift 12W. The location for this verification was for the lifting lug holes that had been previously tested by the QC Inspector and found to be acceptable. The locations for these tests are as follows;

12W-PP114-W3-W1~W4

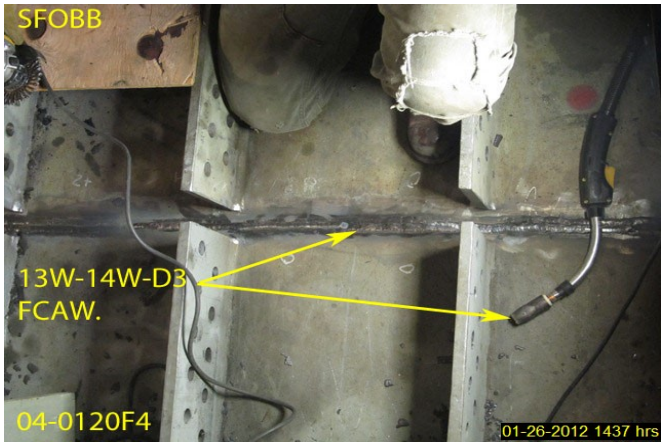
12W-PP114-W4-W1~W4
12W-PP115-W4-W1~W4

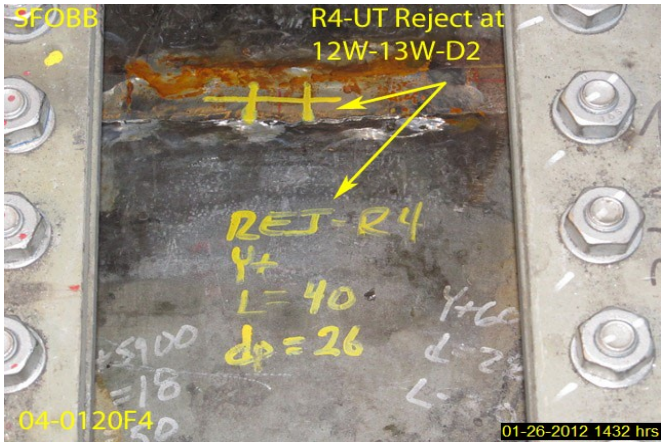
This QAI performed a Visual Observation (VT) and the MT verification and noted that the welds appeared to be within the contract documents at the time of this observation. For further information see document TL-6028 submitted on this date.

E). Submittal Review

The QAI reviewed contract documents at pier 7. The QAI used approved weekly welding report submittals for Watson Bowman Acme, and cross referenced the welding and inspection status as reported with QA records to identify the overall weld status. The QAI completed reviewing welding report submittals ABF-SUB-002550 Rev 34. The QAI generated TL-20 reports for these submittals. Reference the TL-20 reports for additional information.

QA Observation and Verification Summary
The QA inspector observed the QC activities and the welding utilizing the WPS's as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspectors utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the welding process stated appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators. Unless noted otherwise, all work observed on this date appeared to be in general compliance with the contract documents at the time of observations.





Summary of Conversations:
Basic conservation, fundamental to completion of the tasks at hand, occurred between this QAI and ABF QC personnel.
Comments

WELDING INSPECTION REPORT

(Continued Page 4 of 4)

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Riley,Ken	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer